

CITY OF NASHUA

MAYOR'S

TRANSPORTATION

TASK FORCE REPORT

December 1, 2009

Intentionally left blank

TABLE OF CONTENTS

A.	INTRODUCTION.....	1
B.	VISION GOALS AND OBJECTIVES	1
C.	PLANNING PROCESS.....	1
1.	EXISTING SYSTEMS SUMMARY	2
a.	Road Network and Traffic Trends	2
b.	Overview of the Nashua Transit System and Scholl Transportation	4
c.	Student Transportation System	5
d.	Role of the Boire Field Nashua Municipal Airport (text summarized from presentation)	5
e.	Freight Rail in Nashua:.....	7
D.	SCENARIO PLANNING PROCESS	8
E.	STATUS QUO SCENARIO:	10
F.	FUTURE LAND USE SCENARIO.....	13
G.	HIGH COST OF TRANSPORTATION SCENARIO.....	17
H.	CONSENSUS VIEW OF FUTURE NEEDS	20
I.	RECOMMENDATIONS	21
1.	IMPLEMENTATION OF PASSENGER RAIL	23
2.	DEVELOP AN ADDITIONAL CROSSING OF THE MERRIMACK RIVER.....	26
3.	EXIT 36 S.....	29
J.	OTHER TRANSPORTATION RECOMMENDATIONS:.....	31
1.	NH 101A CORRIDOR	31
2.	TAYLOR FALLS/EAST HOLLIS/BRIDGE AND CANAL STREET AREA.....	33
3.	SPIT BROOK ROAD AND DW HIGHWAY AREA	35
4.	MAIN STREET/DOWNTOWN	37

5.	THE FEE TURNPIKE.....	39
K.	LOOKING AHEAD.....	41

A. INTRODUCTION

Mayor Donnalee Lozeau formed the Transportation Task Force for the purpose of developing a consensus for the “big picture” transportation needs of the City of Nashua and to develop a list of priorities for future infrastructure investment. This view from 50,000 feet is intended to examine the automobile dominated land use patterns that have evolved over the last 60 years and offer a direction that will build on recent efforts to expand Nashua’s multimodal approach to infrastructure improvements.

The Task Force included representatives from the Board of Aldermen, state legislature, business and neighborhood representatives, as well as staff members representing the Nashua Transit System, Public Works, Community Development, Economic Development and the Nashua School District. The Task Force convened in the fall of 2008 to help develop a vision for the future of the transportation system of the City of Nashua. The Task Force met 9 times over the course of the last year to examine all aspects of Nashua’s transportation system.

The Task Force recognized that the transportation system does not exist in isolation, but functions in a complex relationship to community land use and the broader economic conditions that shape the community. Therefore, to develop a vision for the transportation system, it was necessary to consider alternative development patterns that may exist in the city in the future, as well as the broader economic context. The Transportation Task Force began its work by reviewing the existing transportation systems present in the City. Representatives from various City Departments and other related agencies provided a snapshot of their current issues as they relate to transportation.

After establishing and understanding the baseline existing conditions the Transportation Task Force with support from City and NRPC staff began a scenario planning process. Three alternative scenarios or pictures for how the city might develop and change in the decade were developed. The transportation needs that the city would experience were evaluated for each of those scenarios by the technical committee and staff. A set of holistic recommendations were developed

based on aspects of all three scenarios that would represent the consensus of the task force and a possible future direction for investments into the transportation system.

Concurrent with the efforts of the Transportation Task Force, The Mayor's direction was that the public should have opportunities to provide input into this process. Multiple public participation opportunities were included in this project. The Transportation Task Force developed and distributed a survey designed to seek input on the transportation needs of the community. The Survey was distributed to schools, civic organizations and other local groups, and was also available on-line. In addition presentations were made to local civic groups and a public meeting was held at Nashua City Hall in July 2009.

This report summarizes the activities and recommendations of the Transportation Task Forces efforts to develop a consensus vision built around a multi modal integrated transportation system. From the perspective of a 50,000 foot overview, it will identify the vision, goals and objectives of the Transportation Task Force, describe the planning process used to arrive at that vision and discuss areas of concern and holistic integrated transportation solutions.

B. VISION GOALS AND OBJECTIVES

A **vision statement** paints a picture of desired characteristics of the community in the future. It also serves as the inspirational framework for decisions that will be made in achieving the vision.

The Mayor's Task Force was charged with developing a vision for the long term transportation needs of the City of Nashua. After many discussions over the course of their meetings, the Task Force developed the consensus that the transportation system of the future must consist of a solid network of roadways and pathways throughout the City that accommodates automobiles, transit, and non-motorized travel, and is seamlessly integrated with rail, air, and inter-city bus. As such, the Task force developed the following **vision statement**:

As the center of population and economic growth in the region, the City of Nashua enjoys the advantage of an integrated, multi-modal transportation system.

Transportation investments are coordinated to create a system that responds to fluctuations in the economy, accommodates new technologies, provides a wide range of transportation options, and supports and maintains a livable, sustainable quality of life and economic competitiveness.

The City's transportation system offers a comprehensive road infrastructure and a seamless network of bus, rail, and air transit, as well as pedestrian and bicycle facilities. The system allows for ease of mobility within the City as well as for connections to the greater Nashua region and beyond.

This vision is consistent with the 2000 City of Nashua Master Plan Goal set forth in the Transportation Element:

A transportation system that comprehensively serves the transportation needs of our residents and businesses and enhances quality of life.

C. PLANNING PROCESS

The Transportation Task Force conducted a comprehensive planning process that included, reviewing and analyzing existing data, conducting a scenario planning process and collecting public input on the current and future needs for transportation in the City. Public input was gathered concurrently with the Scenario planning process and is summarized below.

Public Input and Transportation Survey:

The Task Force issued a survey in the spring of 2009 in an effort to gauge the thoughts and ideas of residents and other Nashua stakeholders on the future of Nashua's transportation system. Task Force members reached out to leaders and organizers of various community groups (business groups such as the Nashua Rotary, Great American Downtown, elementary school PTO groups, etc.) in an effort to encourage participation of a wide variety of community stakeholders.

Four school PTOs were contacted about participating and approximately 20 surveys were completed from Mt. Pleasant and Bicentennial Elementary schools. The Great American Downtown distributed surveys to the Board of Directors. NRPC staff presented the project and survey to the Nashua Rotary on May 18th where approximately 30 surveys were collected. In addition, the survey was also posted on the City of Nashua Website. About 70 surveys in total were tabulated and a summary of the findings is presented below:

- The majority of respondents felt that Nashua would not be the same in 20 years, but would instead have an increased and more diverse population and added cultural elements.
- Numerous respondents identified a need to attract high tech and manufacturing businesses to Nashua from the surrounding region and Massachusetts. Without community investment and incentives for businesses growth main occur primarily in the retail and service sectors.
- The City is mostly built out so there will be a decrease in traditional large subdivisions. Instead more over 55 housing, and affordable higher

density and multi-family housing is likely to occur especially near amenities in the downtown.

- There will be an increased need for public transportation as the general population as well as the aging population increases. Rail access to Boston will facilitate job access for commuters from Nashua.
- Respondents indicated overwhelming support for establishing commuter rail service to Boston.
- Respondents indicated overwhelming support for expansion of the existing City Bus System both in terms of hours of operation and areas served within the city and the surrounding region.
- Promotion of bicycling and walking by improving sidewalk and trail connections.
- Transit, Rail and Automobile were the top ranked transportation systems to have in 20 years.
- Focusing on the development of a multi-modal transportation system will be key to Nashua's success in the future.

The Planning Process also included a review of the existing transportation systems in the City. Task Force members and City staff presented information to the Task Force over a series of meetings to help set the baseline for the planning process. Presentations included:

- Road Network and Traffic Trends
- Overview of the Transit System
- Student Transportation
- Role of the Boire Field Nashua Municipal Airport

1. EXISTING SYSTEMS SUMMARY

The following paragraphs summarize the presentations and help set the context for the Scenario Planning Process conducted by the Task Force.

a. Road Network and Traffic Trends

North/South Movement of traffic: The City of Nashua is essentially cut in half by the Nashua River limiting north south vehicular travel to the three bridge crossings of the Nashua River. The highest capacity crossing is the FEE Turnpike which runs

through the geographic center of the region west of the downtown area. East of Turnpike the primary north south route is the Main Street Bridge. North-south movement west of the Turnpike requires driving into Hollis via NH 111 and coming back into the City via NH 130 or Broad Street.

East West Movement of Traffic: East west mobility within the City limits is facilitated by several arterial roadways such as NH 101A, NH 130, and NH 111. However traveling east of the City limits can become problematic as crossings of the Merrimack River are limited to two locations. East of Main Street the major east-west corridor (Bridge St/Canal St/Amherst Street) has limited capacity and high congestion. This corridor feeds into the Taylor Falls Bridge which also has geometric constraints and congestion issues on the east side of the river. West of Main Street and the Turnpike, Amherst Street and NH 101A serve as a primary east west corridor in the City. Most of NH 101A is at or exceeding capacity during peak travel times. In addition, extensive development resulting in numerous curb cuts adds to congestion and safety concerns. Broad Street (NH 130) serves as a secondary east-west corridor and also congested during peak travel periods.

Downtown Traffic: Much of the traffic congestion in downtown Nashua has been attributed to the confluence of high volume north-south and east-west routes at Library Hill. In addition, the pattern of one-way streets, identified as a concern in Downtown Master Plan, leads to driver confusion and congestion.

Daniel Webster Highway and Spitbrook Road area: The Daniel Webster Highway and Spitbrook Road area is a highly developed corridor and is an economic center for the City with several large employers and shopping centers located along the corridor. The intense development has lead to intersection capacity issues at several key locations along the corridor. The development has also lead to an excessive number of driveways which add to congestion and impact the safety of the roadway. There is limited opportunity for motorists to access the FEE Turnpike compound the problem by forcing regional traffic on to Spit Brook Road to access Exit 1. These issues are compounded during the holiday shopping season due to the density of retail establishments along the corridor.

Traffic Trends: Nationally vehicle miles traveled (vmt) has steadily grown over the last 60 years. In fact, vehicle travel has grown at twice rate of population for more

than 50 years. Since 1970, this growth trend has only been slowed three times; in the 1974, 1981 and 2007. In each of these years the country experienced a dramatic increase in the cost of fuel. In addition to this overall growth in travel, our travel habits have changed dramatically both nationally and locally:

- Most travel growth has been for non-work purposes
- Average daily travel per household has almost doubled since 1969
- Carpooling has dropped as a percentage of all trips to and from work

Locally, changes in growth patterns and the economy of the region will influence travel in the region. The explosive population growth of 1960's, 1970's and 1980's is over. It is expected that future population growth in region will be steady and mainly outside Nashua requiring more people to rely on personal automobiles. Nashua and the region are shifting to retail/service economy which leads to higher traffic. The current land use patterns in region will lead to increasing congestion on all major roads.

b. Overview of the Nashua Transit System and Scholl Transportation

Public Transportation in the City of Nashua is provided by the Nashua Transit System (NTS). NTS provides fixed route service and demand-response para-transit service to residents of the City and limited service to surrounding communities. NTS is the most successful urban public transit system in the state.

NTS serves the City of Nashua with seven fixed routes which operate between the hours of 6:30 am and 6:30 pm daily. In addition, the After 7 service provides two routes that operate from 6:45 to 10:45 pm on Monday through Friday. The After 7 service provides limited service along the major travel corridors and retail centers in the city. NTS also has service agreements with many of the colleges in the area to provide unlimited service to college students.

The existing system provides access to key destinations including retail, medical, schools and colleges and the inner city neighborhoods.

Ridership on NTS buses has risen steadily over the last several years. In FY 2008 NTS had provided over 400,000 rides.

	FY05	FY06	FY07	FY08
Fixed Route	315,477	348,018	350,699	381,071
Para Transit	38,256	38,884	39,474	35,034
Total Ridership	353,703	386,902	390,173	416,105

Improvements to service and recent increases in gas prices have contributed to the increased ridership.

c. Student Transportation System

School Transportation is currently provided by First Student Inc. First Student is under contract with the City to operate 55 large buses and 31 special education buses daily.

Approximately 8500 students are transported each school day. The buses cover over 1 million miles a year but remove hundreds of vehicle trips from the City road network during the morning peak travel time.

In addition to school trips First Student provides trips to athletic events, field trips and high school shuttle service.

d. Role of the Boire Field Nashua Municipal Airport (text summarized from presentation)

Boire Field/Nashua Municipal Airport is located in the northwest corner of Nashua and is comprised of 396 acres that is leased to the Nashua Airport Authority by the City of Nashua. The airport has grown in size over the years. The runway is 5,501 feet long by 100 feet wide, and has the capability of landing large corporate jet aircraft. The largest aircraft currently based at Nashua is a Gulfstream V with a wingspan of 105'. The airport attracts corporate jets as the city and surrounding areas grow and corporations move to the area.



The airport conducted an economic impact study in 1999. The results indicated a direct spending of \$5,590,000, transportation savings of \$4,758,940 and induced benefits of \$11,180,000 for a total benefit of \$21,528,940. At that time the airport and its tenants provided a substantial employment base with 183 full-time jobs and 17 part-time jobs. The industrial park employs 260 people on a full-time basis and 24 part-time. Additionally, the airport provides many essential community services, such as five flight schools, air ambulance, Daniel Webster College's Aviation Division and Angle flight Sponsors. The facilities are also used by the Civil Air Patrol and EAA. The number of employees has grown over the past 10 years.

e. **Freight Rail in Nashua:**

The New Hampshire Main Line (NML) Railroad runs from Boston to Concord and passes through the east side of Nashua parallel to the Merrimack River. The Wilton Branch splits off of the main line in the East Hollis Street area and runs parallel to Amherst Street and NH 101A to the town of Wilton. Pan AM Railways owns and maintains the line in New Hampshire.

The NML handles daily freight traffic. Freight service between Massachusetts as Nashua consists of local freight trains and coal trains that continue north to Bow NH. Additional freight service north and west of Nashua serves local industries including granite quarries in the Milford and Wilton area. Through freight trains generally operate in the evening and early morning hours. Train speed is limited to between 10 MPH and 25 MPH in most locations due to poor track conditions. Because of the poor condition of rail roads in Nashua, products shipped by rail are often unloaded in Boston or Worcester where intermodal freight facilities transfer product from railcar to truck. Trucks then make their way to Nashua and the region. This adds additional wear and tear to the roads and bridges as well as to the costs of doing business in the region.

D. SCENARIO PLANNING PROCESS

Building upon the baseline information covered in the existing conditions review, the Transportation Task Force then used a scenario planning method to anticipate the way the city will develop and change in the next decade and to identify resulting transportation needs.

Scenario planning is a strategic planning method used to produce flexible long term plans. In a typical scenario planning method the critical variables (such as future land development patterns, costs of fuel, etc) that will impact future needs are identified. Then two to three alternative scenarios are developed that represent the different possible ways in which those variables could change over time.

Stepping back and viewing Nashua's Transportation system from 50,000 feet provided an opportunity to understand the transportation within the City and how that system integrates with the region. Land use and transportation decisions made by the City are influential both to its residents and the residents of the surrounding communities.

The Transportation Task Force considered the following three options in the scenario planning exercise.

- ***Status Quo Scenario*** – The status quo scenario assumed that Nashua will remain the center of employment in southern New Hampshire with about 55% of the region's employment and about 44% of population. Growth that takes place will be incremental in nature and without changes to existing land use policies. The cost of transportation will remain at historical levels in relation to household income and other costs.
- ***Future Land Use Scenario*** – This scenario focused on mixed land uses and emphasizes Nashua as a balanced job center and residential community.
- ***High Cost of Transportation Scenario*** – In this scenario, the Task Force assumed that the total household cost for meeting transportation needs

using private vehicles would increase significantly and maintain that high level into the future. Under this scenario, the Transportation Task Force considered broad based changes in transportation choices and land use patterns in order to meet the basic needs of households and businesses.

Each of these scenarios was discussed and refined at Transportation Task Force meetings. NRPC and City staff worked cooperatively to analyze each scenario and develop recommendations towards the goal of a transportation system that comprehensively serves the transportation needs of our residents and businesses and enhances quality of life.

E. STATUS QUO SCENARIO:

The first scenario considered by the Transportation Task Force was the Status Quo; that is the current land use patterns and transportation system will be maintained and currently proposed transportation projects will be implemented as programmed in the State of New Hampshire's Ten Year Transportation Plan.

This scenario mirrors current planning assumptions used by NRPC when developing travel demand projection for the region. NRPC's Regional Travel Demand Forecasting Model (the model) was used to develop future traffic conditions for the Status Quo Scenario. To maintain and run the model, NRPC uses TransCad, a leading traffic modeling and GIS software package produced by the Caliper Corporation. The base year of the model was originally calibrated to 2002 traffic counts and uses 2000 U.S. Census data.

The model uses socioeconomic data comprised of employment and household data and summarized by Traffic Analysis Zone (TAZ). There are 2,034 TAZs in the NRPC model, of which 591 are in Nashua. Each TAZ contains total households, residents, and employees. Residents and employees are both assigned an industry classification, based on Census data. Industry classes include retail, manufacturing, professional services, finance, real estate, and others. In addition, each household is coded with the number of vehicles available to it, also derived from Census data.

The travel demand model also assumes a set of transportation projects to be developed based on current programming assumptions established cooperatively by NHDOT and NRPC. The Status Quo scenario assumed the following transportation improvements would be in place within the City Limits by 2020.

- NH 101A Widening Celina Ave to Somerset Parkway
- The Broad Street Parkway
- NH 130 Safety Improvements
- East Hollis Street Capacity and Safety Improvements

Outside the City of Nashua Limits the following significant regional projects were assumed to be in place by 2020:

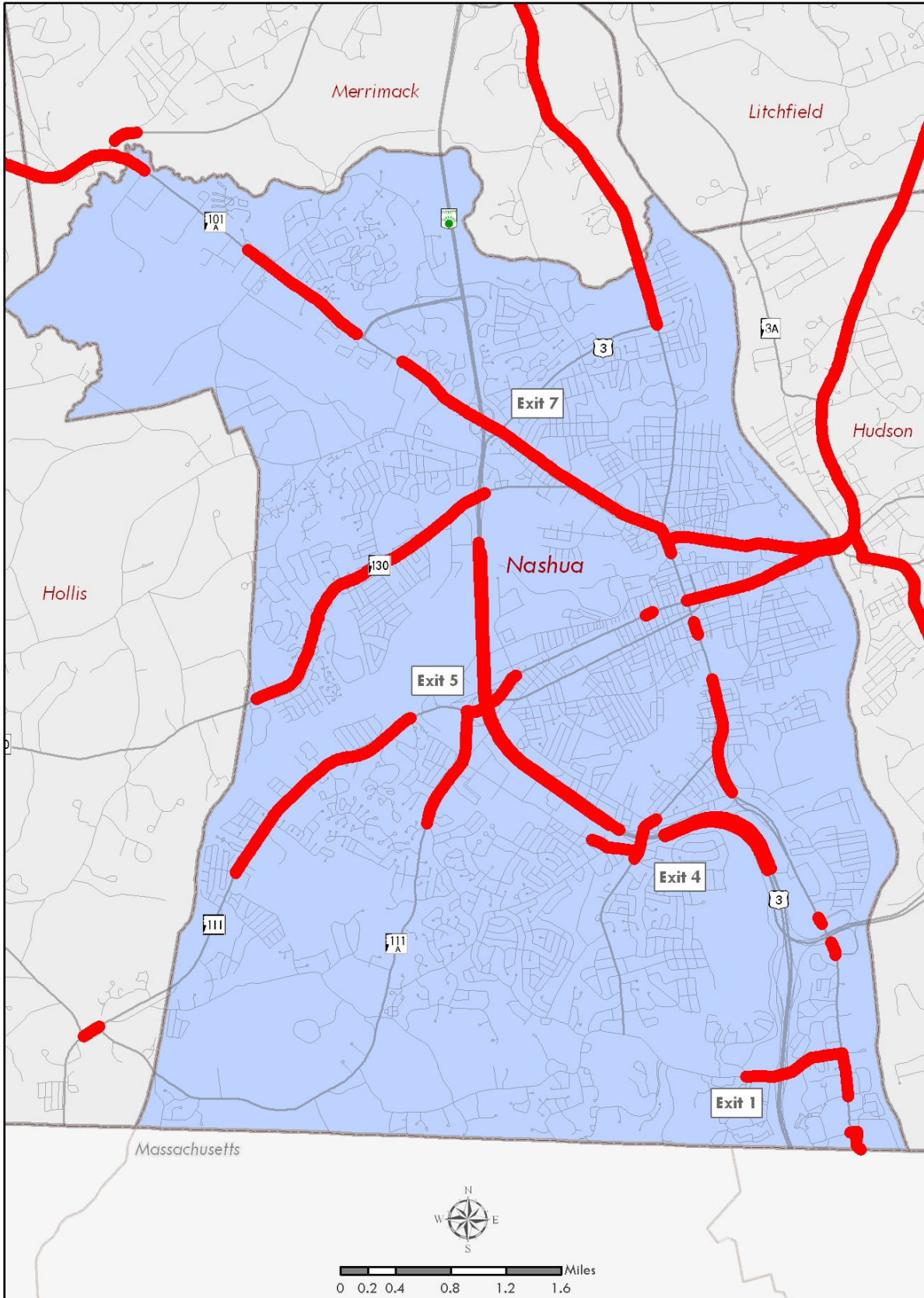
- Airport Access Road
- Safety Improvements to NH 101

Taking a 50,000 foot view of the Status Quo travel demand projections for the year 2020 NRPC identified areas of potential congestion with in the City shown on the following page.

Areas with the potential for increases in traffic congestion include:

- NH 101A Corridor
- East Hollis Street, Canal Street and Taylor Falls Bridge
- D.W. Highway and Spit Brook Road Area
- F. E. E. Turnpike between Exits 4 and 7
- Main Street
- Amherst Street
- NH 130
- NH 111

Mayor's Transportation Task Force



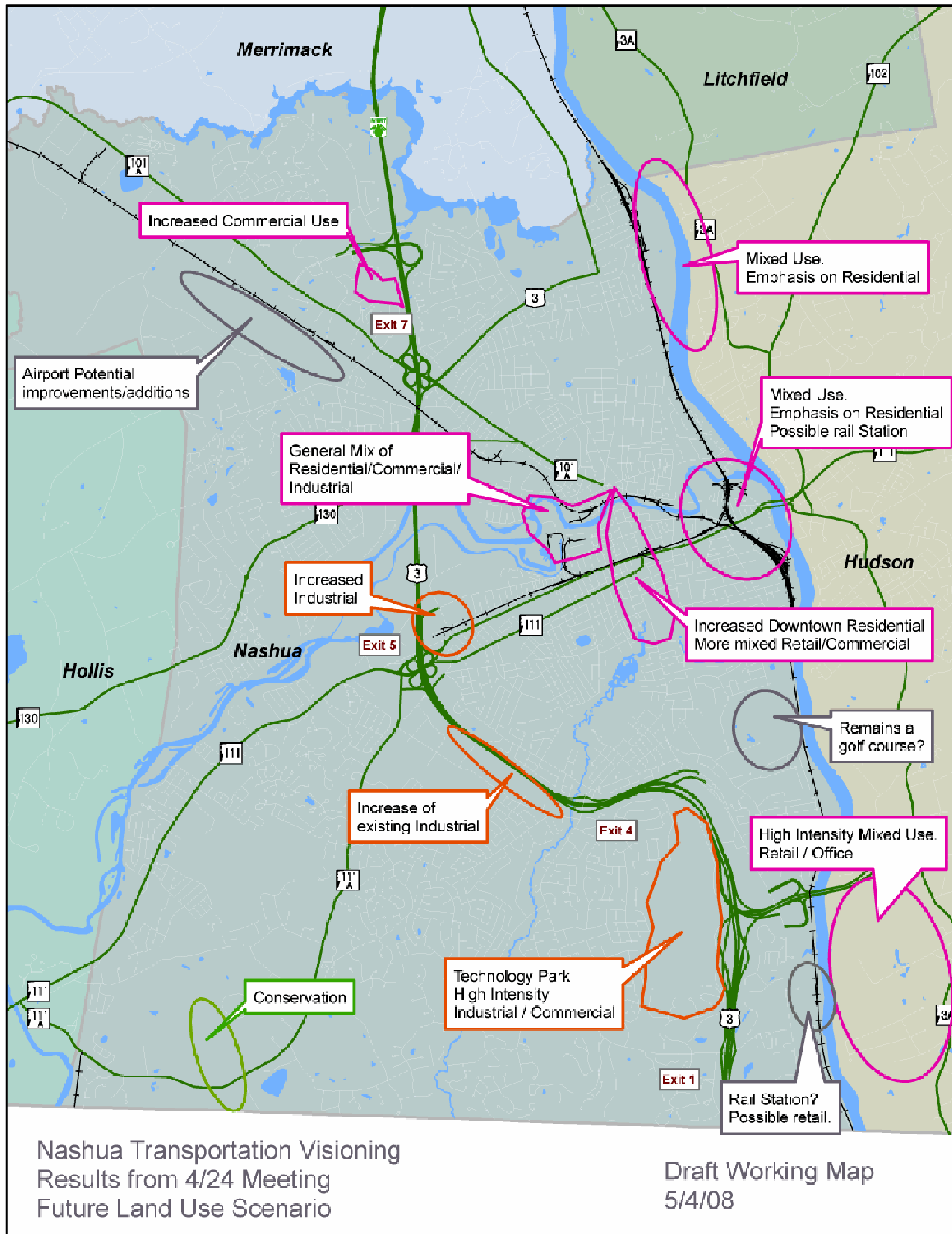
F. FUTURE LAND USE SCENARIO

The Transportation Task Force was asked to develop a second land use scenario for analysis in the scenario planning process. In developing this scenario, the Task Force considered the role Nashua plays in the regional economy from Boston to Manchester related to housing and employment. Today, Nashua is a net importer of employees – there are about 29,000 people who live elsewhere commuting to Nashua for employment and about 23,000 Nashua residents that commute outside the city for employment. Although trips to and from work only make up about 25% of all personal trips today, these trips are mainly made in the morning and afternoon peak hours and result in the highest demand for nearly all the transportation systems. Broadly speaking, there are two ways Nashua's role in the broader region could develop in the next decade.

- a) Nashua could remain a job center for the surrounding region,
- b) Nashua could become more of a residential location due to relative growth in employment in surrounding areas, primarily Hudson, Merrimack, Manchester and Massachusetts locations.

Such changes in the city's regional role would lead to changes in the demands placed on all the city's transportation systems.

NRPC and City Staff held a working meeting with the Transportation Task Force and concluded that Nashua should remain the job center for the region (Option A). Based on that decision the Task Force identified several areas around the City where changes to the existing land use assumptions should be considered and analyzed for the influence on the transportation system. The changes recommended by the Task Force are shown on the map on the following page:



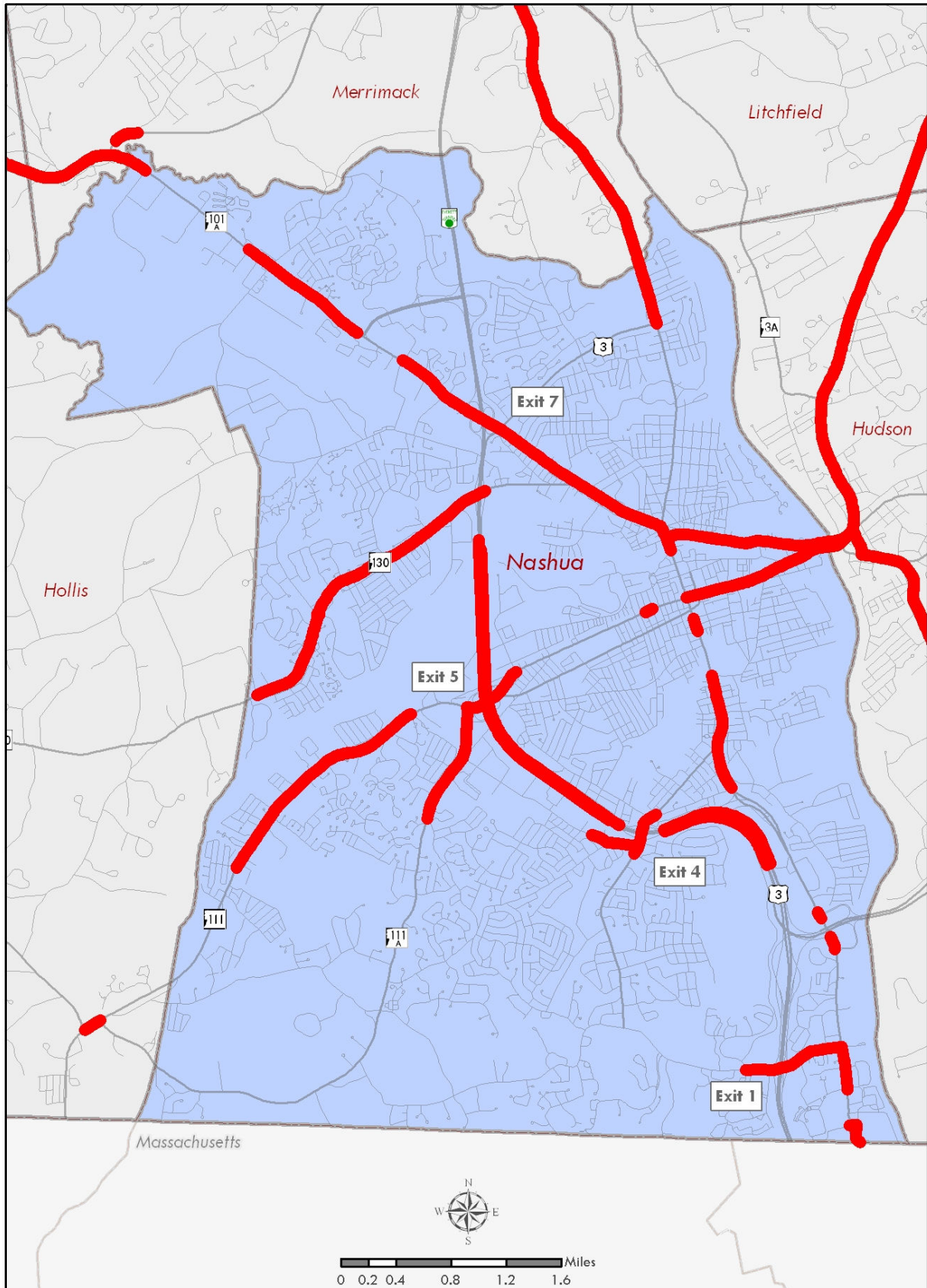
NRPC developed a new set of land use assumptions in consultation with the Transportation Task Force and applied those changes to the travel demand model. The recommendations of the Task Force generally included increasing mixed uses in the downtown, the Millyard, the East Hollis Street Area and the Beezer Property. Increase in commercial and industrial uses was recommended in several areas along or adjacent to the F.E. Everett Turnpike. The specific changes for each of the areas shown on Figure ## are provided in the appendix.

Analyzing the travel demand model results for the Future Land Use scenario from the perspective 50,000 feet above the City shows that the changes in land use although locally significant do very little to influence the travel demand by automobile. In fact, the areas of congestion based on the Future land use concept shown on the map on the following page are virtually unchanged when compared to the status quo scenario.

As was the case in the Status Quo Scenario, the areas of potential congestion in the Future Land Use Scenario include:

- NH 101A Corridor
- East Hollis Street, Canal Street and Taylor Falls Bridge
- D.W. Highway and Spit Brook Road Area
- F. E. E. Turnpike between Exits 4 and 7
- Main Street
- Amherst Street
- NH 130
- NH 111

Mayor's Transportation Task Force



G. HIGH COST OF TRANSPORTATION SCENARIO

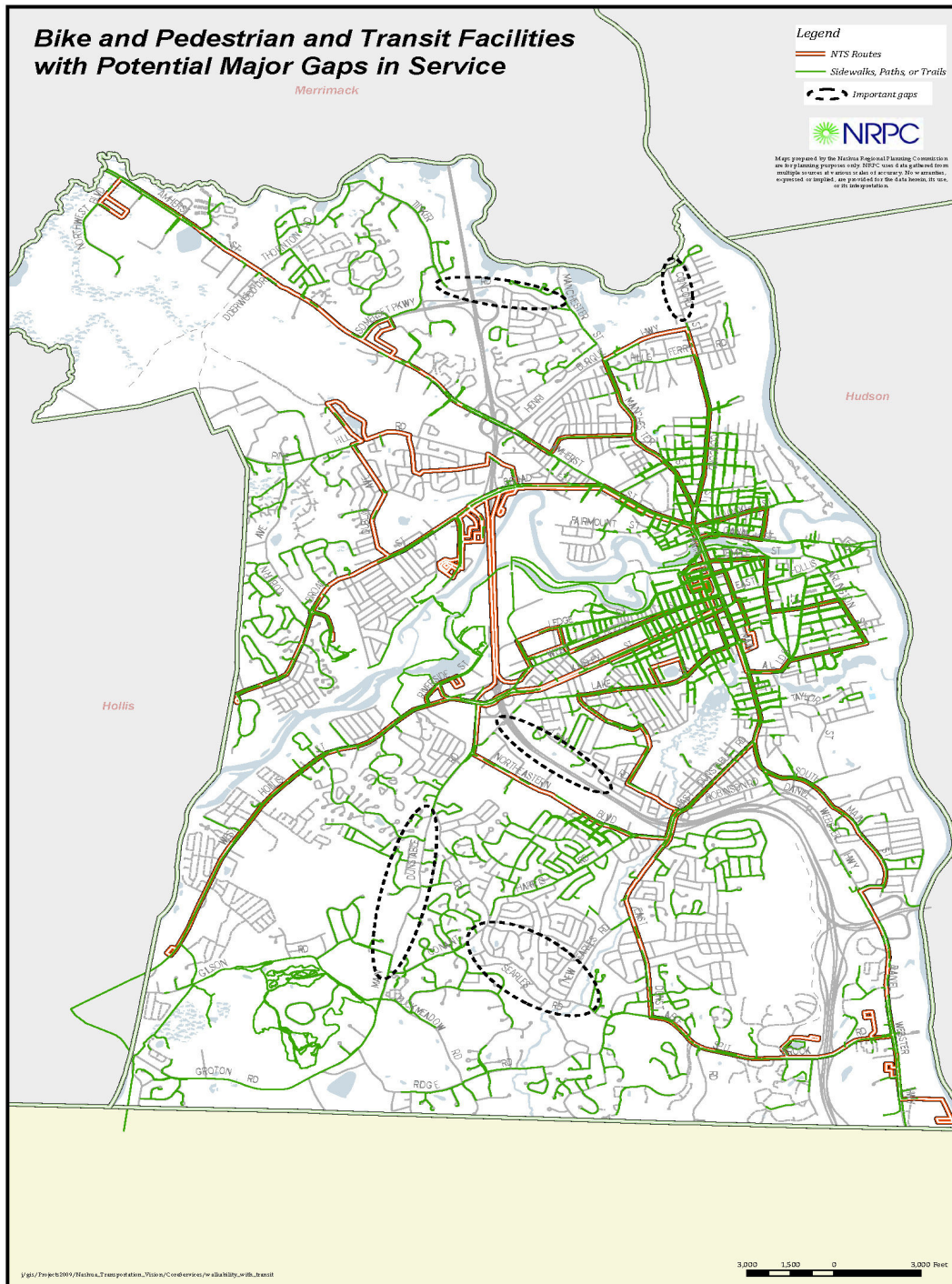
In this scenario, it was assumed the total household cost for meeting transportation needs using private vehicles will double within the next ten years and maintain that high level throughout the rest of the period. The Transportation Task Force considered broad based changes that may force transportation choices as well as changes in the land use patterns that organize our communities and the manner in which households and businesses meet their basic needs. Unlike the previous two scenarios, this scenario does not lend itself to a travel demand model analysis. Instead the Task Force relied on spatial datasets and examined existing land use patterns and transportation infrastructure to assess the feasibility moving about the City with less reliance on a personal vehicle.

In order to move about the City without using automobile residents would need to rely on the Nashua Transit System, the sidewalk network and bicycle travel. The Task Force examined these systems in isolation to identify potential gaps in the respective networks.

- *Sidewalks and Trails*: The City of Nashua sidewalk and trail network provides significant coverage throughout the city with most densely populated areas having the greatest coverage. Currently, there are approximately 197 miles of sidewalk throughout the City. There are approximately 10 miles of designated bicycle routes. The Task Force reviewed the sidewalk trail and bicycle network and identified gaps in the network.
- *Nashua Transit System*: NTS is a critical component in Nashua's Transportation System. NTS has expanded its coverage and service over the last several years. The Transportation Task Force reviewed the service hours and geographic coverage of the NTS system. The largest gap in service is in the southwest quadrant of the City. The Nashua Transit System is currently planning to extend the existing Route 5 to help cover that gap in service.

After reviewing the transit and bicycle, pedestrian networks separately the Task Force overlaid the transit and bicycle, pedestrian data sets to identify

barriers that may prevent residents from moving about the City independently of the personal automobile. Potential gaps in service and connectivity were identified for potential areas of investment.



Another consideration in the High Cost of Transportation Scenario was to identify the core services in relation to the transit, bicycle, and pedestrian facilities and population. For the purposes of this discussion Core Services are defined as medical facilities, grocery stores, schools, major employers and elderly housing. Ultimately access to public transportation will be a critical factor should transportation costs increase dramatically. The Task Force considered population density relative to existing NTS routes.

If transportation and fuel costs increase dramatically it is anticipated that automobile oriented culture will change. Exactly what changes will occur is difficult to predict. Based on anecdotal evidence gathered from the summer of 2007 we understand that short term spikes in transportation costs result in behavior change. Transit and intercity bus ridership increased as did use non motorized modes of transportation such as cycling and walking. Other behavioral changes included a shift towards more fuel efficient vehicles. Should transportation costs remain high, more substantial changes may occur such as a shift in population towards walkable communities with multiple transportation modes.

Nashua is well positioned to adapt to higher fuel costs and provide residents with options for travel. The pedestrian, bicycle and transit system provide a good basis for a truly walkable community. Additional investment to close the gaps in the existing system should be considered as should longer term development of regional transit including bus and passenger rail facilities

H. CONSENSUS VIEW OF FUTURE NEEDS

The Transportation Task Force concluded the Scenario Planning exercise by developing a consensus view of future transportation needs. The consensus view included three transportation infrastructure investments to address persistent east west travel congestion, DW Highway congestion and economic development opportunity along the corridor and the possibility of sustained high cost of transportation. These proposed transportation infrastructure investments are supported by a series of smaller scale investments that were developed by the Task Force using a holistic approach that values multi-modal transportation system equally important as highway/automobile oriented improvements. With this consensus direction as guidance the recommendations were developed and are discussed below.

I. RECOMMENDATIONS

As described in the Scenario Planning discussion the Status Quo Scenario and Future Land Use Scenario developed by the Task Force resulted in virtually identical automobile travel demands for the City. Growth and land use patterns for the last 50 or more years have been automobile centric and resulted in the current road network and congestion we experience today. *This 50,000 foot analysis* of three different scenarios shows that shifting away from the personal automobile to a new transportation paradigm will not happen quickly; nor will it happen through relatively minor changes in land use patterns. It has taken more than 50 years of automobile oriented development to arrive at our current conditions. The goal of this exercise is not to reverse the 50 year trend but to provide a balanced approach towards development of a multi-modal system that maintains Nashua as the center of population and economic growth in the region.

The recommendations are organized by their potential to have an impact on mobility in the City and region; not as a prioritized list. The three largest projects listed have the potential to relieve congestion in multiple locations throughout the City, affect travel behavior and impact economic development.

- Implementation of Passenger Rail
- Additional crossing of the Merrimack River
- Improvements to Exit 36S

Additional recommendations that would compliment these larger scale projects are also provided. Each of these recommended transportation infrastructure improvements provide the opportunity to consider all modes of transportation and provide connectivity independent of the mode of travel chosen by City residents. Recommendations are provided for the following potential areas of congestion:

- NH 101A Corridor
- East Hollis Street, Canal Street and Taylor Falls Bridge
- D.W. Highway and Spit Brook Road Area
- F. E. E. Turnpike between Exits 4 and 7

Mayor's Transportation Task Force

- Main Street
- Amherst Street
- NH 130
- NH 111

Transportation investments should be made and coordinated to create a system that responds to the needs of the city and provides a wide range of transportation options, and maintains the quality of life and economic competitiveness for the City

In all cases the recommendations were developed for a 50,000 foot perspective. With this in mind the several recommendations are proposed to address the anticipated future traffic conditions and transportation needs of the City.

1. IMPLEMENTATION OF PASSENGER RAIL

The NH Capitol Corridor (NHCC) passenger rail service is planned to run on upgraded tracks between Boston MA and Concord NH, a distance of approximately 78 miles. The proposed passenger service will connect Concord, Manchester, Manchester-Boston Regional Airport and Nashua NH with Boston MA's North Station.

The project as envisioned will have four stations – Concord, downtown Manchester, Manchester Airport near the Airport Access Road, and Nashua. Station site acquisition and development must be advanced sites in Nashua, downtown Manchester, near Manchester-Boston Airport and Concord. Station locations are extremely important due to their influence on ridership and the opportunities for revenue generation. Selecting a station site is an important step for the City's efforts towards the implementation of passenger rail service. The station site in Nashua would include a station building, a passenger platform, tracks to accommodate the commuter trains while passengers are boarding, station access elements (such as roadways, accessible pedestrian paths and bicycle facilities, and drop-off/pick-up areas for passengers). In addition the station site would require a parking area. It has been estimated that the site would need to accommodate approximately 1,000 parking spaces. The most recent examination of potential site locations in Nashua looked at four potential locations: Nashua Beazer-East Site, East Hollis Street Area Site, Nashua Landing Site and Sagamore Crossing Site.

Longer term planning supports the development of a downtown Nashua station perhaps in the vicinity of the East Hollis Street area.

The City and region stands to benefit significantly from the implementation of passenger rail service as currently envisioned. Likely benefits would include:

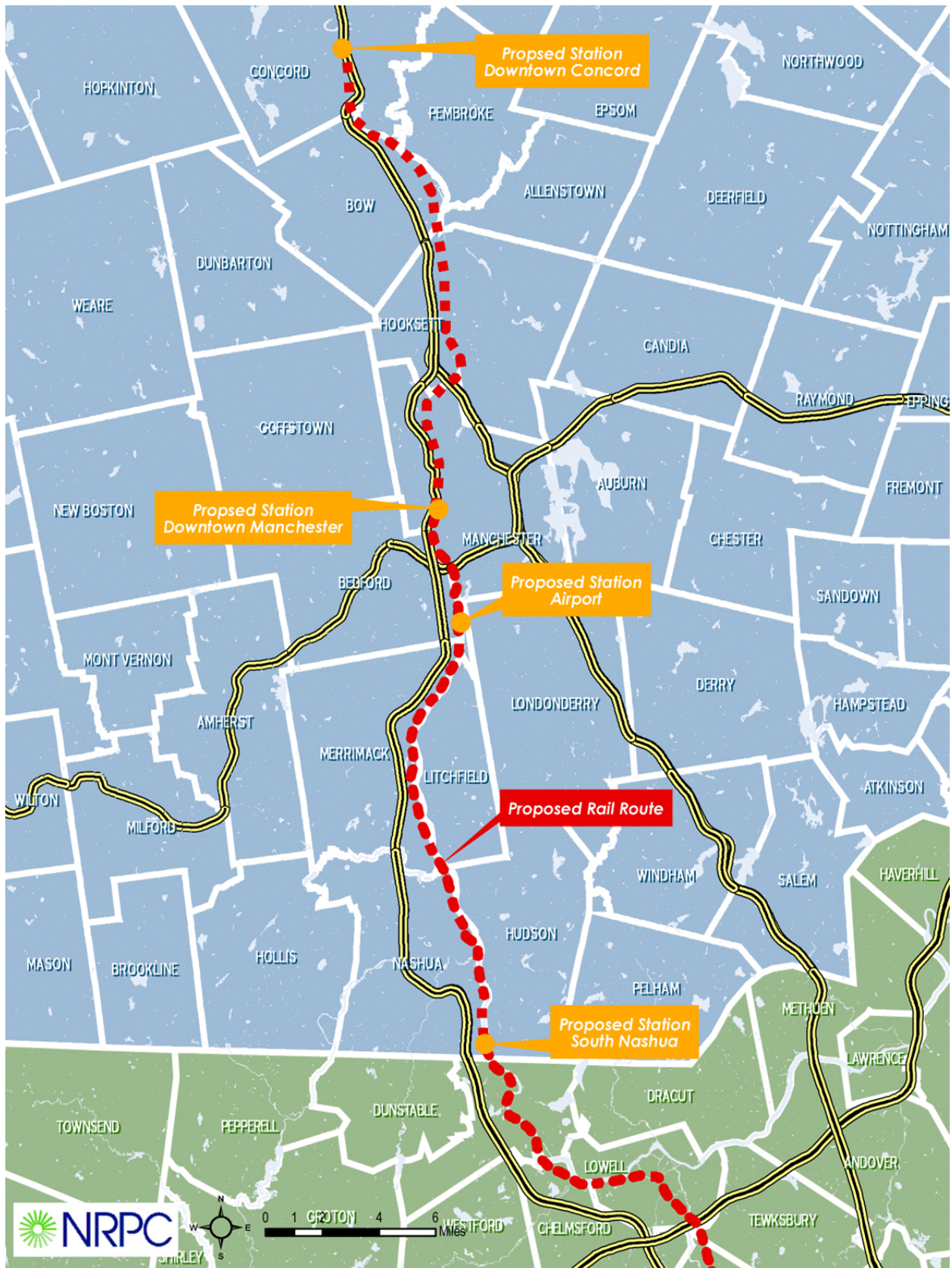
- Providing a direct connection with Boston, Logan Airport, Manchester Boston Regional Airport
- Address future congestion on the F.E.E. Turnpike by reducing the use of Single Occupancy Vehicles (SOV).

Mayor's Transportation Task Force

- Provides an air quality benefit to the region by reducing the number of SOV trips.
- Improves the potential for an expansion of freight rail in the city and region
- Potential for economic benefit to the region
- Improve the quality of life for residents

Estimated Cost for the improvements from Lowell to Concord is approximately \$300M

Mayor's Transportation Task Force



2. DEVELOP AN ADDITIONAL CROSSING OF THE MERRIMACK RIVER

An additional crossing of the Merrimack River has been a priority in the Region for nearly 50 years. A number of options and alternatives have been considered over the years. This project remains a high priority for the region. **A specific location for the crossing has not been identified.** To be most effective in relieving traffic congestion the crossing must be located to the north of the Taylor Falls/Veterans Memorial Bridge.

The Merrimack River forms a major barrier in southern New Hampshire separating the eastern part of the state of the central and western portion. Traffic needs to move across southern New Hampshire between the Derry-Salem area along Interstate 93 and the Nashua area along the FEE Turnpike. The Merrimack River forces all east-west traffic to cross the river at only two locations:

- The Taylor Falls/Veterans Memorial Bridges between downtown Hudson and downtown Nashua, and
- the Sagamore Bridge between southern Hudson and southern Nashua.

Traffic forecasting using NRPC's regional traffic model indicates that traffic across the Merrimack River will continue to increase rapidly. Traffic across the Taylor Falls/Veterans Memorial Bridge between downtown Hudson and downtown Nashua is expected to increase from 37,000 vehicles per day (vpd) today to 53,500 vpd in 2025. This is an increase of 45% at a rate of 1.7% per year. The Sagamore Bridge is expected to increase from 36,500 vpd currently to 61,900 by 2025. This is an increase of 67% at rate of 2.3% per year. It should be noted that these increases will take place despite the development of the Airport Access Road Bridge across the Merrimack River that is expected to be used by at least 20,000 vpd by 2025. This transportation improvement will have significant local and regional benefits.

An additional northern crossing of the Merrimack River will alleviate congestion in central Hudson and downtown Nashua, particularly on the Taylor Falls Bridge.

Depending on the specific location of the crossing and if it can be connected to

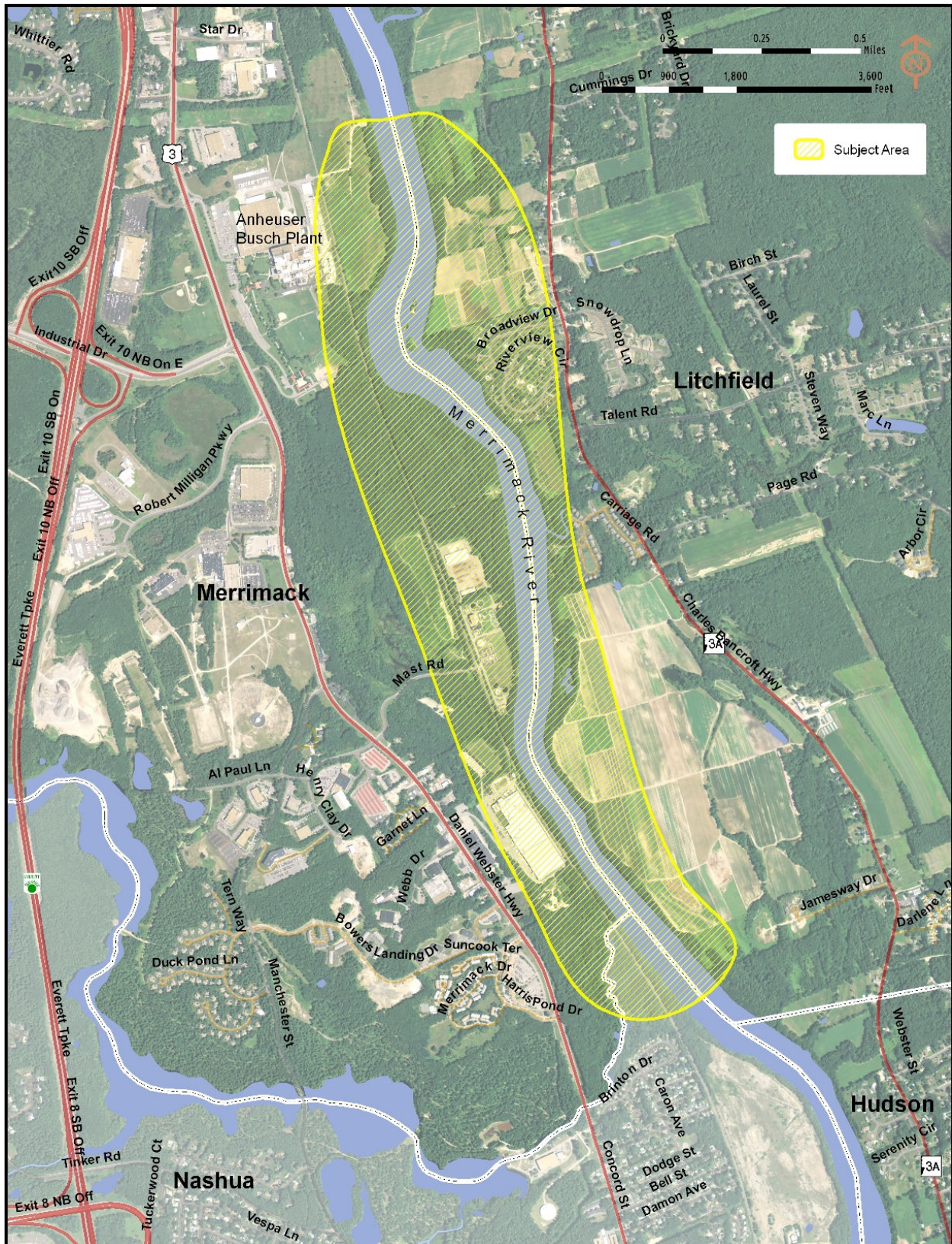
the F.E.E. Turnpike, it has the potential to reduce traffic on Concord Street and Amherst Street. In addition, the project would benefit the East Hollis Street area, downtown Nashua/Main Street discussed earlier in this report.

East west connectivity is a long standing issue for the City and region. An additional crossing of the Merrimack River would provide significant benefits to the City and region. Likely benefits would include:

- Improves regional east west traffic flow.
- Reduces congestion on Bridge Street, East Hollis Street, Concord Street and Amherst Street

Estimated Cost for an additional crossing of the Merrimack River is approximately \$150M.

Mayor's Transportation Task Force



3. EXIT 36 S

The proposed Exit 36S Project will add a southbound off-ramp to US 3 – Exit 36 at a location straddling the New Hampshire/Massachusetts border. Exit 36 currently has all other ramps (northbound on-ramp, northbound off-ramp and southbound on-ramp). The addition of the southbound off-ramp will complete the interchange. The lack of this ramp causes traffic bound for retail destinations in south Nashua and north Tyngsboro to divert to Exit 1 in New Hampshire and Exit 35 in Massachusetts. NRPC has estimated that 13,300 vehicles per weekday divert to Exit 1 in New Hampshire. The high volume of diverting traffic causes excessive congestion and hampers the retail businesses in the area.

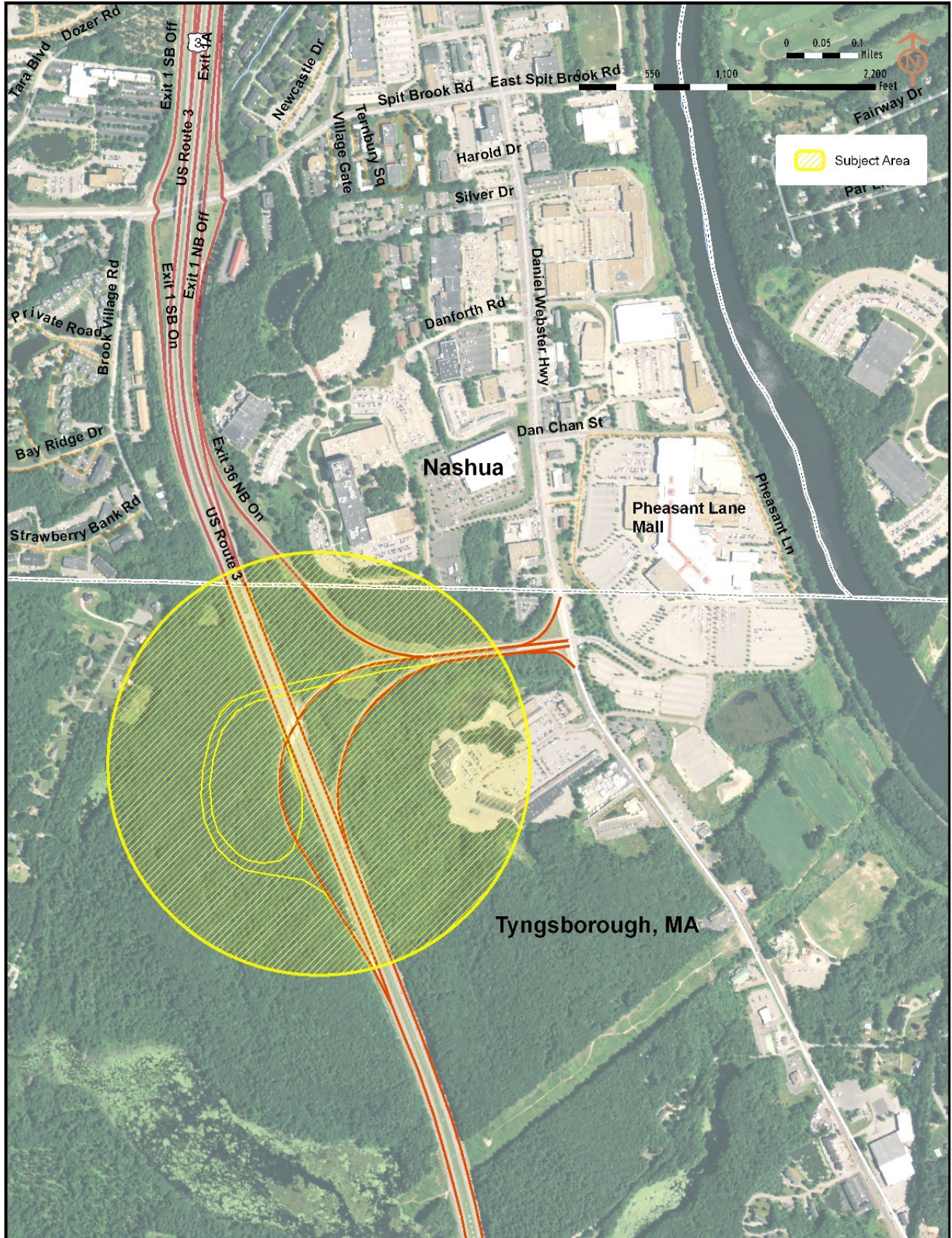
The completion of Exit 36 S would have a significant benefit to the DW Highway and Spit Brook Road area. It would provide direct access to the core of the retail development in south Nashua greatly reducing congestion on the DW Highway while improving safety. This project would also support locating a regional passenger rail station in south Nashua.

Congestion in the DW Highway and Spit Brook Road area is a long standing issue for the City. Improvements to Exit 36 S would provide congestion relief and economic development opportunities to the City. Likely benefits would include:

- Reduced congestion on Spit Brook Road and DW Highway.
- Direct access to retail centers
- Facilitates a possible rail station location at Pheasant Lane Mall
- Facilitates the development of the Nashua Technology Park off of Spit Brook Road.

Estimated Cost for the improvements at Exit 36 S is approximately \$10 – \$15 M

Mayor's Transportation Task Force



J. OTHER TRANSPORTATION RECOMMENDATIONS:

There are several additional transportation improvements and recommendations that would compliment these larger scale projects. Each of these recommended transportation infrastructure improvements provide the opportunity to consider multi-modal solutions and provide connectivity independent of the mode of travel chosen by City residents.

1. NH 101A CORRIDOR

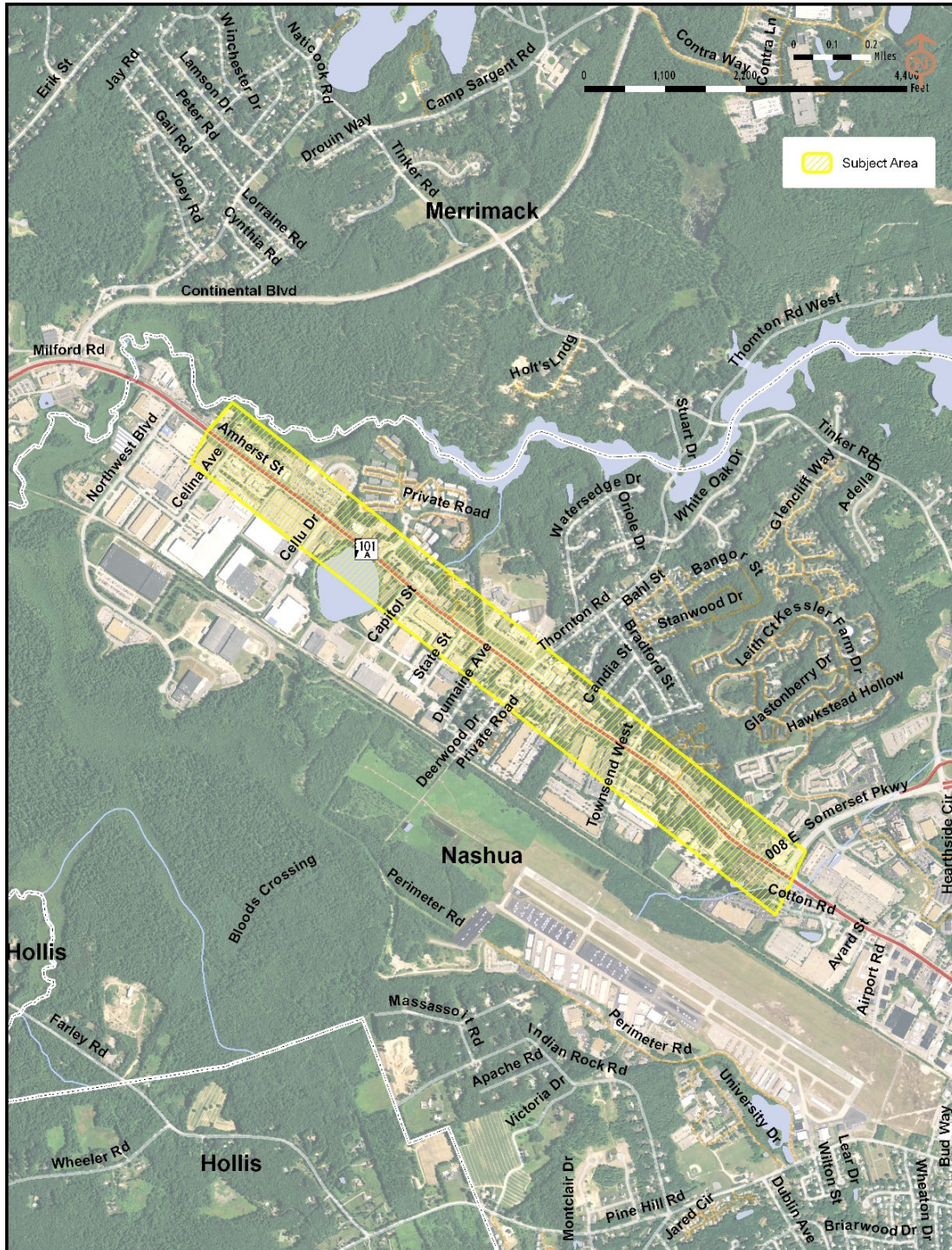
The NH 101A corridor was identified as an area of existing and future congestion in the City. The corridor functions as a regional arterial for east west traffic and provides direct commuter access to the F.E.E. Turnpike and downtown Nashua. In addition the corridor serves as major retail destination for the city and region and is the home of the Nashua Community college. There is a proposed highway improvement project that includes widening NH 101 A to 3 lanes in each direction from Somerset Parkway to Celina Avenue. The goal of the project is to increase capacity along the corridor while enhancing pedestrian, bicycle and public transit. This widening study is a follow-up to recommendations contained in the NH 101A Corridor Master Plan & Improvements Program that was completed in December of 2002. *This corridor provides an opportunity to invest in a coordinated manner that contributes to a system that responds to fluctuations in the economy, implements new technologies, provides a wide range of transportation options, and supports and maintains a livable, sustainable quality of life and economic competitiveness.*

NH101 A Corridor Recommendations

- Invest in access management strategies to improve the safety of the corridor.
- Expand transit service along the NH 101A corridor. Reduce headways on existing service. Consider re-establishing regional service to Milford to reduce reliance on the personal automobile.
- Investigate the possibility of a regional multi-use path parallel to the Wilton Branch of the Railroad
- Complete the proposed highway improvements currently proposed in the NHDOT Ten Year Plan

Mayor's Transportation Task Force

- Development of an additional crossing of the Merrimack River, north of Taylor Falls, could benefit this corridor.
- Consider improvements to airport access
- Consider Intelligent Transportation Systems (ITS) technologies.



2. TAYLOR FALLS/EAST HOLLIS/BRIDGE AND CANAL STREET AREA

Congestion in the East Hollis Street area has been a long standing concern in the City. Traffic operations on East Hollis Street Bridge Street and Canal Street experience significant congestion during the peak hours. Some roadway safety and pedestrian safety improvements are currently programmed in the NHDOT Ten Year Plan in 2017. In addition the East Hollis Street Master Plan outlines a number of recommendations worthy of consideration. The area has been identified as a potential location for a future downtown rail station and has great potential for improvements to enhance non-motorized travel and contributes to a *transportation system that allows for ease of mobility within the City as well as for connections to the greater Nashua region and beyond.*

Corridor Recommendations:

- Revisit recommendations from the East Hollis Street Master Plan and develop implementation strategies for those recommendations.
- Invest in access management strategies to improve the safety of the corridor and reduce congestion.
- Focus on bicycle safety as the Taylor Falls Bridge is one of the few opportunities for east west bicycle travel in the region.
- Consider Intelligent Transportation Systems (ITS) technologies.
- Recognize that an additional crossing of the Merrimack River north of this location will reduce congestion.
- Complete the proposed highway improvements currently proposed in the NHDOT Ten Year Plan

Mayor's Transportation Task Force



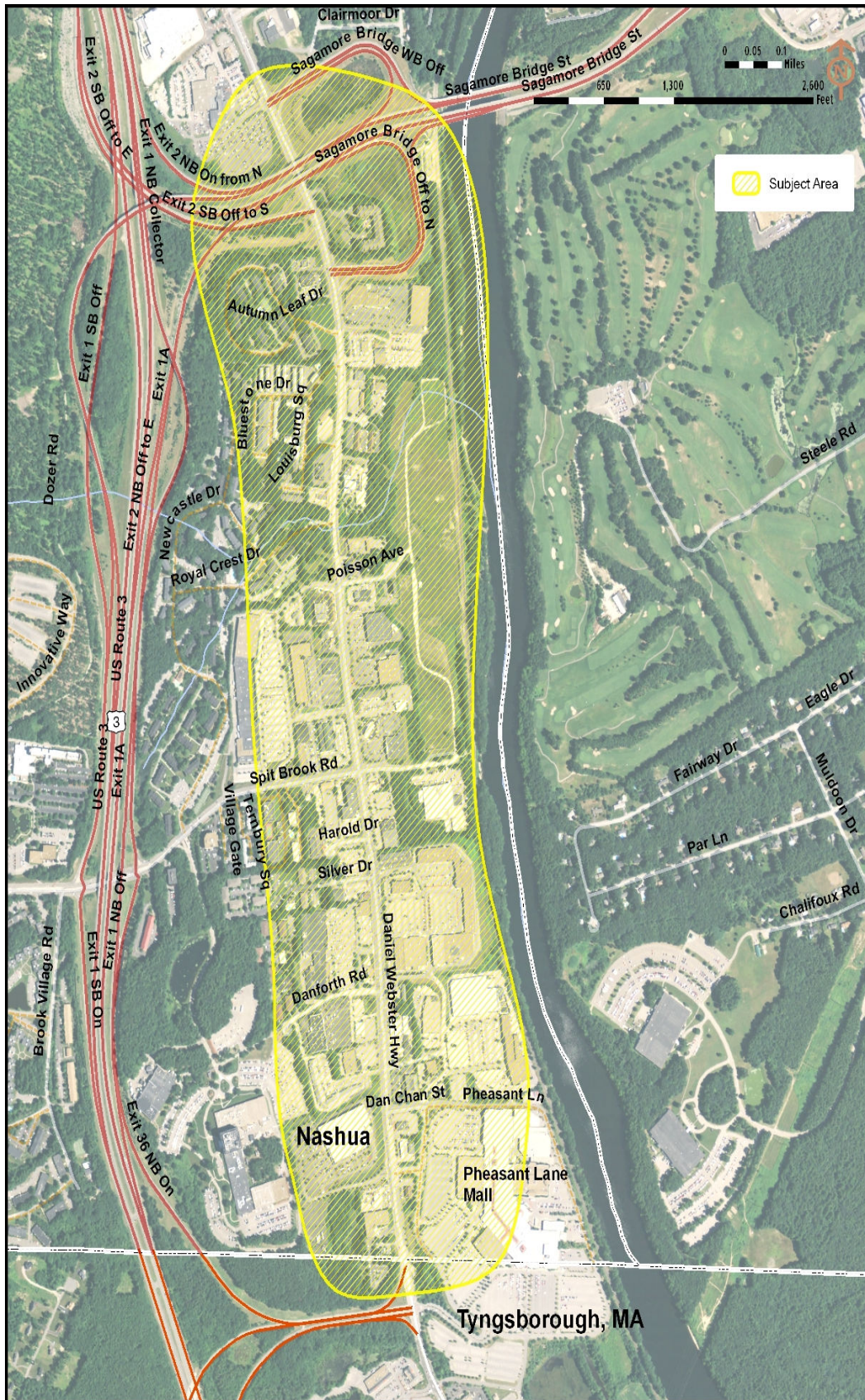
3. SPIT BROOK ROAD AND DW HIGHWAY AREA

The DW Highway and Spit Brook Road area is among the most congested areas of the city. Expansive retail development, heavy commercial use and concentrated dense population centers contribute to the congestion. The proximity of the tax free retail opportunities to the Massachusetts boarder also results in addition pressure on the corridor. The corridor is also burdened by multiple curb cuts resulting in increased congestion from turning and entering traffic. *Investments in to improving the transportation system in the Spit Brook Road and DW Highway area offer an opportunity to use new technologies, provide a wide range of transportation options, and support and maintain the quality of life and economic competitiveness important the City*

Corridor Recommendations

- Pursue the development of Exit 36S to provide direct access to the southern end of the DW Highway from the Southbound F.E.E. Turnpike
- Consider increasing transit service by reducing headway's during peak travel times.
- Invest in access management strategies to improve the safety of the corridor and reduce congestion.
- Investigate the feasibility of developing a dedicated transit route parallel to the DW Highway
- Continue to invest in Intelligent Transportation Systems (ITS) technologies.
- Consider transit oriented development options along the corridor including a train station located close to densely populated areas.

Mayor's Transportation Task Force



4. MAIN STREET/DOWNTOWN

Travel on Main Street and the surrounding blocks of downtown is important to the vitality of the City. Efforts have been made over the last decade to improve travel in and around downtown for motorists as well as bicycles and pedestrians. The addition of the Broad Street Parkway will bring reduce traffic on Main Street and Amherst Street and result in less congestion during the Peak hours.

The City's vision for an integrated transportation system comes together in the downtown. Extensive pedestrian and bicycle facilities connecting to the Transit center make downtown the hub of transportation for the region. The opportunity to further develop a seamless network of bus, rail, pedestrian and bicycle pathways that will improve mobility within the City as well as create regional connections is greatest in this area.

Corridor Recommendations

- Revisit the one way street pattern to improve mobility throughout the downtown.
- Continue to focus on pedestrian and bicycle connectivity to the downtown.
- Consider land use changes that provide the opportunity for mixed use development including residential retail and commercial
- Continue to implement Intelligent Transportation Systems (ITS) technologies to ease congestion and improve safety of intersections
- Recognize that an additional crossing of the Merrimack River north of this location will reduce congestion on the North end of Main Street.

Mayor's Transportation Task Force



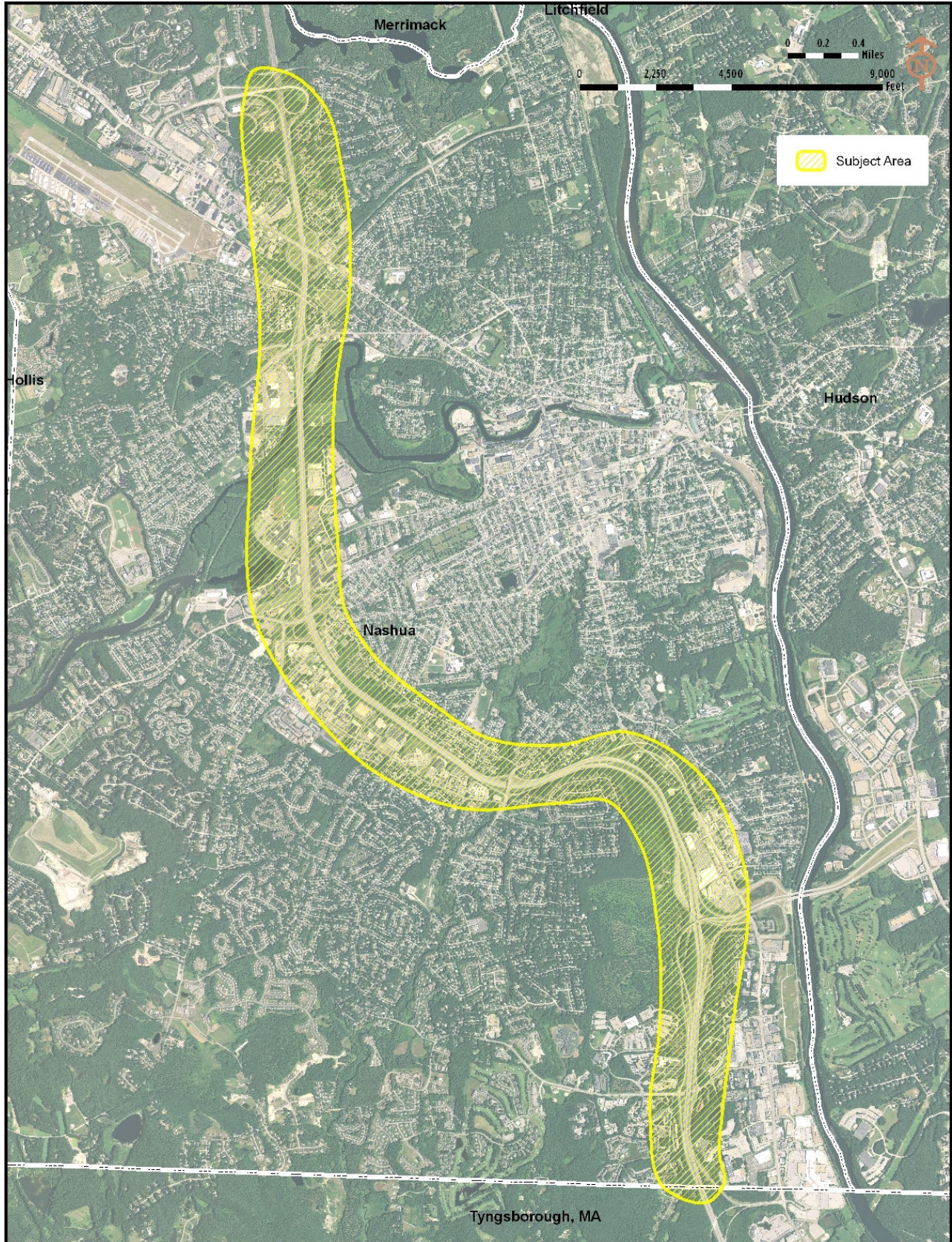
5. THE FEE TURNPIKE

The FEE Turnpike is the principal arterial highway through the region. It is the primary commuting route to points north and south and serves as an economic lifeline to the City and region. The Turnpike was most recently widened in 199#. This is likely to be the last widening of the turnpike within the Nashua City limits. Future travel demands suggest that the turnpike will become congested. With widening not an option the City can take steps to reduce future congestion on the turnpike through the support and implementation of rail and transit systems and other transportation programs. Future congestion on the Turnpike could be eased through the *development of a robust and integrated bus and rail transportation system that is seamless to the end user.*

Corridor Recommendations:

- Continue efforts to bring passenger rail to Nashua.
- Provide additional connections between NTS bus service and Inter City bus service at Exit 8
- Participate in Transportation Demand Management Programs that support ridesharing, use of transit, telecommute programs and flexible work hours
- Move forward with plans to implement the Broad Street Parkway. This will help reduce future congestion between Exits 5 and 6 on the Turnpike

Mayor's Transportation Task Force



K. LOOKING AHEAD

Several recommendations outlined in this report have benefits that overlap. One goal of the Transportation Task Force was to develop recommendations that would *allow the development of a comprehensive road infrastructure and a seamless network of bus, rail, and air transit, as well as pedestrian and bicycle facilities.* From the 50,000 foot perspective many of the recommendations address multiple problem areas or potential areas of congestion. The matrix below shows which recommendations could benefit multiple areas of congestion.

AREAS OF CONGESTION	RECOMMENDATIONS						
	NH 101A	East Hollis/ Canal Bridge	Daniel Webster Highway Downtown Improvement	Exit 36S	Merrimack River Crossing	Passenger Rail	
NH 101A	X						
East Hollis/Canal/ Bridge		X				X	X
DW Highway/Spit Brook Road			X		X		X
FEE Turnpike Exits 4 to 8						X	X
Main Street/Downtown				X		X	
Amherst Street/Library Hill		X		X		X	

An additional crossing of the Merrimack River will have the greatest benefit to the identified areas of potential congestion in the City. As stated earlier in this report a location for the bridge has not been identified and there are no current plans to pursue a crossing of the River that would impact residents of Nashua. The project has and will continue to be a priority for the region. A coordination effort should be initiated between the leaders of Nashua, Merrimack, Hudson and Litchfield as a means to find common ground regarding this important east

west connection.

The City should continue to participate in planning efforts to bring passenger rail back to the City and region. The Transportation Task Force has recommended that the City identify and secure the Train Station location.

Communication with the town of Tyngsboro should be initiated to identify mutual interests that may exist around the Exit 36 S area. Coordination at the regional and state level should also be initiated.

The Transportation Task Force recommends that the City continue to work at a local and regional level to pursue the additional recommendations highlighted in this report. This can be accomplished by being an active participant in the Metropolitan Planning Process administered by the Nashua Regional Planning Commission.